DOCUMENT RESUME

ED 416 225 TM 028 082

AUTHOR Obringer, S. John
TITLE The Pupil Rating Scale (Revised) as a Predictor of Referral for Central Auditory Disorders.
PUB DATE 1985-11-11
NOTE 13p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (14th, Biloxi, MS, November 11, 1985).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Auditory Evaluation; Auditory Perception; Diagnostic Tests; *Disability Identification; Elementary Education; *Elementary School Students; Learning Disabilities; *Referral; *Test Use; Verbal Ability
IDENTIFIERS *Pupil Rating Scale (Myklebust)

ABSTRACT

A study was conducted to determine which factors on the Pupil Rating Scale (Revised) developed by H. Myklebust (1965) were identified by classroom teachers as being deficient in referring students for central auditory testing. The Pupil Rating Scale is a behavioral checklist for classroom teachers to use to rate students in five broad categories of verbal and nonverbal abilities. Pupil Rating Scale results for 20 students referred to a hearing clinic by local Arizona public schools were compared with those from a sample of 1,264 without central auditory disorders. It was found that teachers had rated the referred students as significantly lower on comprehension, personal-social behavior, and certain spoken language skills. Both the total verbal and total scale scores were significantly lower than for Myklebust's normal sample. Results suggest that the Pupil Rating Scale (Revised) is an adequate instrument for clinical referral, and that the subtests of auditory comprehension and the personal-social behavior are quite adequate predictors of students in need of central auditory testing. (Contains 2 tables and 14 references.) (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 416 225

THE PUPIL RATING SCALE (REVISED) AS A PREDICTOR OF REFERRAL FOR CENTRAL AUDITORY DISORDERS

John Obringer

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

by

S. JOHN OBRINGER

MISSISSIPPI STATE UNIVERSITY

Paper Presented at

FOURTEENTH ANNUAL MEETING OF MID-SOUTH EDUCATIONAL RESEARCH CONFERENCE

BILOXI, MISSISSIPPI
November 11, 1985

TM 028 082

BEST COPY AVAILABLE

PUPIL RATING SCALE (REVISED)

AS A PREDICTOR OF REFERRAL FOR CENTRAL AUDITORY DISORDERS

Although central auditory disorders have been described by a number of speech and hearing specialists, they remain one of the most evasive disabilities. Most writers would agree that a central auditory disorder falls somewhere between the verbal decoding and encoding processes, but little agreement occurs beyond this observation.

Orton (1937) is generally credited with pioneering the fields of perceptual mechanisms that are thought to be involved in language and learning processes. He hypothesized that the inability to perceive sequences of events seriously limited children with developmental communicative disorders.

Perhaps Johnson and Myklebust (1967) provide the most straightforward explanation of a child with a central auditory disorder: "He hears, but he does not interpret what he hears. He is unable to structure his auditory world, to sort out and associate sounds with particular objects or experiences" (p. 67). Rampp and Plummer (1977) state that an auditory perceptual disorder is a term applied to children with learning disabilities, which is reflected in poor performance on auditory tasks involving attention, discrimination, figure-ground discrimination, memory, closure, temporal sequencing, and generalization. Stark (1975) reported that these disorders are often manifested in poorer than normal reading and writing ability, and slower than normal language development. Myklebust (1965) suggests that we think of "dyslexic" children as forming a heterogenous rather than a homogeneous group, comprising both "visual dyslexics" as well as

"auditory dyslexics."

The interest in the area of central auditory disorders has increased in tandem with the development of the field of learning disabilities (Rampp 1975). Friedlander (1970) indicated that approximately 25 percent of kindergarten children have auditory processing deficits. Males with this disorder outnumber females by about eight to one. A thorough investigation by Kaluger and Kolsen (1969) reveals that reading requires a number of intact auditory processing skills. Wood (1975) reported that auditory processing requires an adequate auditory mechanism and involves a complex series of behaviors: (1) the ability to focus attention on the content and the source of the message; (2) the ability to identify and select the message; (3) the ability to transmit and conduct the message to the brain for analysis; (4) the ability to store and retain the messages by sorting out the appropriate perceptual or cognitive level; (5) the ability to retrieve and restore the message.

From a neurological standpoint a right ear superiority (left hemisphere dominance) appears to lead to more complete central auditory process, whereas a left ear superiority (right hemisphere dominance) may lead to a less complete central auditory process (Kimura 1967). Evidently, the left hemisphere better supports the processes of brief sounds, analytic/logic, verbal memory, semantics, and syntaphonology. In contrast, the right hemisphere appears to better support ideational perception, long durational sound (vowels, glides), imagery, melody of language, stress, and inflection (Protti, Young, & Bryne, 1980).

The traditional tests used by the audiologist to assess central auditory processing include: pure tone testing, tympanometry,

dichotic listening of digits, nonsense syllables, and monosyllabic words (eg. bed, ball, bat, etc.), staggered spondaic word test, filtered speech, binaural fusion test, and simultaneous sentences. However, this battery of tests does not guarantee an accurate diagnosis. Central auditory disorders remain an elusive phenomenon.

Northern and Downs (1978) emphasize the fact that individuals with central auditory disorders almost always show normal pure tone audiometric findings and that reduced sensitivity in pure tones, speech, and other signals is in fact caused by lesions in the peripheral auditory system, not in the brainstem or higher pathways. Matkin and Hook (1983) suggest that the tests of simultaneous sentences, binaural fusion and filtered words are most appropriate and cost effective for identifying children with central auditory disorders.

A widely used instrument to refer students for central auditory testing (CAT) is the Pupil Rating Scale (Revised) developed by Helmer R. Myklebust, Ed.D. This instrument is a behavioral checklist for classroom teachers to rate suspected students in five broad categories comprising two sections, verbal and nonverbal abilities. The five broad categories include: Auditory Comprehension, Spoken Language, Orientation, Motor Coordination. and Personal-Social Behavior. The subtests within each category are listed in Table 1. The scores of the rated behaviors are then converted into a total verbal score, a total nonverbal score, and a total scale score. Students scoring below one standard deviation or a total verbal scale score of below 20, a total nonverbal scale of below 40, or a total scale score of less than 65 are considered suspect for academic failure. The Pupil Rating Scale (Revised) has had extensive validity and reliability

studies and has been proven to be a reliable test instrument. It is used by public schools and clinics.

The purpose of this study was to determine which factors on Myklebust's Pupil Rating Scale (Revised) were identified by classroom teachers as being deficient in referring students for central auditory testing.

Method

Twenty students referred to the University of Arizona Hearing Clinic by the local public schools served as subjects for this study. The students ranged in age from 7 years 7 months to 17 years 1 month. Thirteen males and seven females comprised the sample. All students were experiencing significant classroom problems and their classroom teachers had completed the Myklebust Scale. After central auditory testing, approximately seventy-five percent of the CAT sample were found to have significant central auditory disorders. Audiograms and tympanograms were normal for nineteen of the twenty subjects.

The Welch's t-test was used to determine if significant differences existed in composite and subtest scores (at the .01 level) between a normal sample of 1264 students selected by Myklebust and the 20 students referred for CAT testing at the University of Arizona Hearing Clinic. The .01 level of confidence was utilized to reduce the possibility of committing a type I error; that is, the rejection of the null hypothesis when it is in fact true.

Results

The results from the Welch's t-test comparison reveal that the CAT students' performance on several subtests of the Myklebust Pupil Rating Scale (Revised) were significantly lower than the performance

of the normal sample. The significantly ($p < .01$) lower performance scores were found in the following scale scores and subtests: comprehending word meanings, following instructions, comprehending class instructions, retaining information, total auditory comprehension, word recall, formulating ideas, attention, organization, social acceptance, responsibility, total personal-social behavior, total verbal, and total scale. Total auditory comprehension, total personal-social behavior, total verbal and total scale scores represent composites of within subtests and are not individual scale item scores. The remaining subtests were not significantly different. These results can be found in Table 1.

Insert Table 1 About Here

Table 2 is a ranking from lowest to highest scores on the Pupil Rating Scale (Revised). As can be seen, the CAT group had lowest scores on items dealing with auditory related skills, comprehending class discussion, organization, following instructions, formulating ideas, retaining information, comprehending word meaning, word recall and attention. In contrast, the CAT group scored highest in items dealing with non-auditory type skills, manual dexterity, cooperation, judging relationships, general coordination, tactfulness, and spatial orientation. In fact, the CAT group scored higher than the overall expected mean of 3.0 on several of these latter subtests.

Insert Table 2 About Here

Discussion

As might be expected, the CAT students scored significantly lower in all auditory comprehension behavioral characteristics. The largest significant difference was found in the subtest, "comprehending class discussion." This subtest had the lowest mean ranking (2.25 as compared to the normal mean ranking of 3.21) and was significant at the .0004 level of confidence. Apparently the CAT group had most difficulty with this auditory behavior. It is of interest that significantly lower scores were found in the area of spoken language, i.e., word recall and formulation of ideas. One might speculate that these skills significantly hinge on auditory abilities. No significantly lower scale scores were found in the areas of orientation or motor coordination. Perhaps the most revealing finding is that five of the eight subtests for personal-social behavior yielded significantly lower scores. These subtests include: attention, organization, social acceptance, responsibility, and the completion of assignments. Also, the total personal-social behavior subtest was significantly lower. Kirk (1983) has noted that the area of personal-social behavior appears to be negatively affected and the results for the CAT group provide experimental verification of this assertion. It may be concluded that the CAT group is perceived by teachers as displaying a range of classroom problems in the area of personal-social behavior when compared to Myklebust's normal sample.

In conclusion, students referred for central auditory testing from public schools are rated significantly lower on comprehension, personal-social behavior, and certain spoken language skills. Both the total verbal and total scale scores were significantly lower than

Myklebust's normal sample. It can be surmised that the Pupil Rating Scale (Revised) is an adequate instrument for clinical referral. From this small sample it is also suggested the the subtests of auditory comprehension, and the personal-social behavior are quite adequate predictors of students in need of central auditory testing.

Additional studies of this nature are encouraged. A larger sample size could be utilized to investigate further the relationships between CAT results and specific results on the Myklebust Pupil Rating Scale (Revised). The personal-social aspects of students referred for Central Auditory Tests would be of special interest in view of the results from this investigation.

REFERENCES

Friedlander, B. (1970). Receptive language development in infancy. Merrill-Palmer Quarterly of Behavior and Development, 16 7-51.

Johnson, D., & Myklebust, H. (1967). Learning disabilities.. New York: Grune & Stratton.

Kaluger, G., & Kolson. (1969). Reading and learning disabilities. Columbus, OH: Charles E. Merrill.

Kimura, D. (1967). Functional assymetry of the brain in dichotic listening. Cortex, 3, 163-178.

Kirk, S. (1972). Educating exceptional children. Boston: Houghton & Mifflin.

Matkin, N., and Hook, P. (1978). A multidisciplinary approach to central auditory evaluations. E. Lasley & J. Kotz (Eds.) Central auditory processing disorders. Baltimore: University Park Press.

Myklebust, H. (1965). Development and disorders of written language. New York: Grune & Stratton.

Northern, J., & Downs, M. (1978). Hearing in children. Baltimore: Williams & Wilkins.

Orton, S. (1937). Reading, writing, and speech problems in children. London: Chapman & Hall.

Protti, E., Young, M., Byrne, P. (1980). The evaluation of a child with auditory perceptual disorders: An interdisciplinary approach. Seminars in Speech, Language and Hearing, 1, 167-180.

Rampp, D. (1980). Auditory perceptual disorders: Speech and language considerations. Seminars in Speech Language and Hearing, 1, 117-126.

Rampp, D. & Plummer, B. (1977). Auditory processing and impaired learning. Learning Disabilities, 1, 7.

Stark, J. (1975). Reading failure. ASHA, 17, 832-834.

Wood, N. (1975). Assessment of auditory processing disfunction, Acta Symbolica, 7, 113-124.

TABLE 1

COMPARISON OF MEANS AND STANDARD DEVIATIONS FOR STUDENTS REFERRED FOR STUDENTS REFERRED FOR CAT WITH MYKEBUST'S NORMAL SAMPLE

Behavioral Characteristics	Normal Mean	Normal SD	CAT Mean	CAT SD	T	P
AUDITORY COMPREHENSION						
Comprehending Word Meanings	3.11	.83	2.50	.76	-2.37	.01*
Following instructions	3.20	.94	2.40	.88	-2.72	.00*
Comprehending class instruct.	3.21	.95	2.25	.79	-3.41	.00*
Retaining information	3.11	.90	2.45	.89	-2.29	.01*
TOTAL	12.66	3.20	9.60	2.79	-3.11	.00*
SPOKEN LANGUAGE						
Vocabulary	3.05	.75	2.85	.62	-0.98	.16
Grammar	2.97	.77	2.75	.55	-1.02	.15
Word Recall	3.14	.81	2.50	.89	-2.34	.01*
Story telling-Relating exper.	3.20	.86	2.70	.80	-1.86	.03
Formulating ideas	3.09	.84	2.40	.82	-2.58	.00*
TOTAL	15.48	3.55	13.20	3.07	-2.13	.02
ORIENTATION						
Judging time	3.28	.96	2.95	.99	-1.05	.14
Spatial orientation	3.41	.69	3.45	.69	0.18	.57
Judging relationships	3.33	.93	3.15	.88	-0.62	.26
Knowing directions	3.13	.87	2.80	1.05	-1.06	.14
TOTAL	13.16	2.93	12.35	2.62	-0.90	.18
MOTOR COORDINATION						
General coordination	3.27	.78	3.20	.89	-0.26	.39
Balance	3.28	.64	2.95	.76	-1.47	.07
Manual dexterity	3.22	.76	3.05	.89	-0.64	.26
TOTAL	9.78	1.97	9.20	2.24	-0.86	.19
PERSONAL-SOCIAL BEHAVIOR						
Ccoperation	3.27	1.00	3.10	1.17	0.78	.22
Attention	3.21	1.00	2.50	.89	-2.33	.01*
Organization	3.11	.98	2.30	.73	-2.90	.00*
New situations	3.29	.79	2.70	.98	-2.07	.02
Social acceptance	3.33	.81	2.70	.86	-2.34	.01*
Responsibility	3.29	.84	2.60	.82	-2.58	.00*
Completion of assignments	3.33	.97	2.70	.73	-2.27	.01*
Tactfulness	3.43	.86	3.40	.82	-0.11	.45
TOTAL	26.39	5.80	22.00	5.41	-2.43	.01*
TOTAL VERBAL	28.14	6.62	22.80	5.61	-2.70	.01*
TOTAL NONVERBAL	49.34	9.53	43.55	9.24	-1.89	.06
TOTAL SCALE	77.49	15.35	66.35	13.58	-2.38	.01*

*Significant beyond the .01 level.

BEST COPY AVAILABLE

TABLE 2

Ranking of items by mean scores for CAT Students on the Pupil Rating Sclae (Revised)

Comprehending class discussion	2.25
Organization	2.30
Following instructions	2.40
Formulating ideas	2.40
Retaining information	2.45
Comprehending word meaning	2.50
Word recall	2.50
Attention	2.50
Responsibility	2.60
Story-telling - relating experiences	2.70
New situations	2.70
Social acceptance	2.70
Completing assignments	2.70
Grammar	2.75
Knowing directions	2.80
Vocabulary	2.85
Judging time	2.95
Balance	2.95
Manual dexterity	3.05
Cooperation	3.10
Judging relationships	3.15
General coordination	3.20
Tactfulness	3.40
Spatial orientation	3.45

BEST COPY AVAILABLE